least 70 N/mm^2.--

— 5. (New) The process according to claim 3 wherein said bake hardening potential is at least 70 N/mm^2.--

S3

REMARKS

Favorable reconsideration of the above-identified patent application, as amended herein, is respectfully requested. Claims 1-3 are presently pending. Claims 1-3 were rejected. Of the claims, Claims 1 and 3 are independent. Claims 1 and 3 have been amended to more clearly recite the claimed invention. Specifically, Claims 1 and 3 have been amended to replace the phrases "dressed" with "temper rolled" and "dressing" with "temper rolling." The Iron and Steel Dictionary and Metals Handbook entries attached hereto as Exhibit A demonstrate that it is known in the art that "dressing" means "temper rolling", and that temper rolling is a process known in the art for suppressing and/or removing yield point elongation. Specifically, the Iron and Steel Dictionary illustrates that "to dress" means "temper rolling". The Metals Handbook at pp. 205-206 and 693 demonstrates that temper rolling is a process known in the art to be effective for suppressing and/or removing yield point elongation.

The §112, Second Paragraph Rejection

Claims 1-3 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter of the invention. It is respectfully submitted that the rejection of Claims 1 and 3 for reciting the phrase "non-ageing steel" is improperly based on the claims as originally filed, and not on the claims as amended on September 29, 1999. This amendment resulted in, *inter alia*, removing the phrase "non-

ageing steel." In view of this amendment, Applicants deem this rejection to be moot.

Applicants respectfully submit that the Examiner's rejection of Claim 1 for reciting the phrase "dressed strip" and of Claim 3 for reciting the phrase "cold rolled and dressed" is also improperly based on the claims as originally filed, and not on the claims as amended on September 29, 1999. This amendment removed both the phrases "dressed strip" and "cold rolled and dressed." In view of this amendment, Applicants deem this rejection to be moot.

The Examiner rejected Claims 1 and 3 under 35 U.S.C. § 112, second paragraph, as being indefinite for reciting the phrase "stove finished." The Examiner asserts that this term is not known to one of ordinary skill in the art, nor distinctly defined in the instant specification. Applicants respectfully submit that such phrase is known to the ordinary artisan. As defined in an English-German Dictionary of Engineering and Technology (attached hereto as Exhibit B), "stove finish" is synonymous with "stove enamel" and "stove drying." One of ordinary skill in the art would thus understand that "stove finished" means "stove enamelling" or "stove drying" of the strip to utilize the bake-hardening potential.

The Examiner further rejected Claims 1 and 3 under 35 U.S.C. § 112, second paragraph, as being indefinite for reciting the broad recitation "high bake-hardening potential" along with "more particularly of more than 70 N/mm^2." The phrase "more particularly of more than 70 N/mm^2" has been removed from Claims 1 and 3 and incorporated into new Claims 4 and 5. In view of such amendments, Applicants deem the rejection under 35 U.S.C. § 112, second paragraph, to be obviated and respectfully request withdrawal thereof.

The §103 Rejection

Claims 1 - 3 were rejected under 35 U.S.C. §103(a) as being unpatentable over

Stevenson (U.S. Patent No. 4,358,325, hereafter "Stevenson"). For a rejection to be sustained under 35 U.S.C. §103(a), the differences between the features of the reference and the claimed invention must have been obvious to one skilled in the art at the time of the invention.

The Examiner asserts that Stevenson teaches a process for making a steel strip with improved formability comprising hot or cold rolling, cooling to a temperature below room temperature and forming as presently claimed in Claim 1. The Examiner further asserts that Stevenson teaches that a steel strip can be retained at room temperature for approximately a week prior to forming as presently claimed in Claim 3. The Examiner acknowledges that Stevenson does not teach bake hardenability of a strip that has been processed according to the instant invention, but asserts that because Stevenson teaches substantially the same method as presently claimed, substantially the same results, *i.e.*, bake hardening, would occur.

It is respectfully submitted that one of ordinary skill in the art would not have been motivated by the teachings of Stevenson to arrive at the instant invention. Firstly, unlike the presently claimed invention, Stevenson does not disclose a maximum value for the condition R_{eh}-R_{el}. Additionally, Stevenson does not disclose or suggest storing of a cold strip, which is cold rolled under usual conditions, at temperatures below room temperature. This is in direct contrast with the instant invention which discloses a method of cold rolling an ageing-sensitive steel strip under normal conditions, followed by storage at temperatures below room temperature.

Furthermore, unlike the instant invention, Stevenson does not disclose or suggest the dependency between the temperature and time of storage and the effect of these two parameters on ageing. In light of these substantial differences, Applicants respectfully submit that Stevenson does not teach substantially the same method as presently claimed and that one of

ordinary skill in the art would not have been motivated to modify the teachings of Stevenson to arrive at the instantly claimed invention.

Claim 3 was rejected under 35 U.S.C. §103(a) as being unpatentable over Nakaoka (U.S. Patent No. 4,050,959, hereafter "Nakaoka"). The Examiner states that Nakaoka teaches a method for producing a non-ageing steel sheet with high formability at the forming stage, and high hardness at the coat-baking stage. The Examiner asserts that because Nakaoka teaches substantially the same method as instantly claimed, as well as a bake hardenability within the presently claimed range, Nakoaka renders the instant invention obvious.

Applicants respectfully submit that the ordinary artisan would not have been motivated to modify the teachings of Nakoaka to arrive at the instant invention. Claim 3 is directed to a process for the production of a buckling-resistant stove-finished structural component from *ageing-sensitive* steel while preventing ageing of the steel. Nakaoka, on the other hand, teaches production of a non-ageing steel, and not the prevention of ageing of an ageing-sensitive steel.

Additionally, unlike the presently claimed invention, Nakaoka does not disclose or suggest storage and temper rolling of an ageing-sensitive steel. In view of these differences, Applicants respectfully submit that one of ordinary skill in the art would not have been motivated to modify the teachings of Nakaoka to arrive at the instant invention.

Applicants deem the rejection of claims under 35 U.S.C. § 103 to be obviated and respectfully request withdrawal thereof.

Applicants hereby respectfully request a two (2) month extension of time for responding to the Office Action. Please deduct any fees resulting from this Amendment from deposit account number 16-2500 of the undersigned.

In view of the foregoing amendments and remarks it is firmly believed that the subject claims are in condition for allowance, which action is earnestly solicited.

Respectfully submitted,
PROSKAUER ROSE LLP

By: ____________________
Mitul I. Desai
Reg. No. 46,661

July 16, 2001

PROSKAUER ROSE LLP
1585 Broadway
New York, N.Y. 10036
Tel. No.: (212) 969-3000

Enclosures: Appendix of Marked Up Version of Amended Claims
Exhibit A
Exhibit B

APPENDIX OF MARKED UP VERSION OF AMENDED CLAIMS

--1. (Twice Amended) A process for the production of a buckling-resistant stove-finished structural component from a cold strip which [consists of] comprises ageing-sensitive steel with a high bake-hardening potential, [more particularly of more than 70 N/mm^2,] characterized in that

- the cold strip is converted by [a dressing] temper rolling to a yield point elongation-free state in which the condition R_{eh}-R_{el} < 2 N/mm^2 is met,
- the cold strip is then stored to storage temperature below room temperature for a storage period whose length is at most equal to the length of the period at whose end the value of critical ageing is reached which results in dependence on the particular storage temperature,
- to storage the cold strip is cold worked to give a structural component, and
- the structural component is [finally] stove-finished.

--3. (Twice Amended) A process for the production of a buckling-resistant stove-finished structural component from a cold strip which [consists of] comprises ageing-sensitive steel with a high bake-hardening potential, [more particularly of more than 70 N/mm^2,]

characterised in that

- the cold strip is stored undressed for a storage period at room temperature,
- following the storage period the cold strip is converted by [dressing] temper rolling to a state in which the condition R_{eh} - R_{el} < 2 N/mm^2 is met,

  the [dressed] temper rolled cold strip is then cold worked to give a structural component, and
- the structural member is [finally] stove-finished.

Iron and Steel Dictionary

Deutsch – Englisch
Englisch – Deutsch
German – English
English – German

7. Auflage
7th edition

EXHIBIT A

Herausgegeben vom / Edited by
Verein Deutscher Eisenhüttenleute

STAHLEISEN

Drehwinkel-Meßumformer *m* angle of rotation transducer

Drehzahl *f* number of revolutions; speed

Drehzahlabfall *m* rpm drop; speed drop

Drehzahlverlauf *m* speed characteristic

Drehzapfen *m* pivot

dreieckig three-cornered; triangular

Dreieckschaltpunkt *m* delta connection

dreifach threefold

Drei-Glocken-Gichtverschluß *m* three bell hopper arrangement

Dreihundert-Grad (300 °C)-Versprödung *f* irreversible temper brittleness

Dreikantschraube *f* triangle head cap screw

Dreikantstahl *m* triangular section steel

Dreilagenblech *n* three-ply plate; triangular section

Dreilagenstahl *m* three-layer steel; two sided clad steel

Dreilagenstahlblech *n* soft center steel sheet

Dreilochdüse *f* three-hole nozzle

Dreiphasen-Sterngegenparallelschaltung *f* three-phase star inverse parallel connection

Dreipunktbiegeversuch *m* three-point bending test

Dreischichtbetrieb *m* three shift operation

Dreistoffsystem *n* ternary system

Dreistrangmaschine *f* three strand machine

Dreistufenfilter *m* **(Spektralanalyse)** three-stage transmission filter

dreistufig three-stage; three-step

dreiteiliger Anfahrkopf *m* three-head dummy bar

Dreiwalzengerüst *n* three-high rolling stand

Dreiwellenkompensator *m* concertina-type expansion joint

Dressierblumen *fpl* feathering

dressieren dress; level

Dressieren *n* skin pass rolling; temper [pass] rolling

Dressiergerüst *n* skin pass rolling mill

Dressierwalze *f* roll for skin pass rolling mill; skin pass roll

Dressierwalzwerk *n* skin pass mill; temper [pass] mill; temper [pass] rolling mill

DRI *n* direct reduced iron (DRI)

Drillingsguß *m* triple casting

Drillknicken *n* torsional buckling

Drillmoment *n* twisting moment

Drillwulststahl *m* twisted (reinforcement) bulb steel

Drop-Weight-Probe *f* drop-weight trial

Drossel *f* **(elektr.)** choking coil; reactance coil; throttle

Drosselklappe *f* butterfly valve; throttle valve

Drosselleistung *f* **(Lichtbogenofen)** supplementary reactor rating

drosseln choke; throttle

Drosselspule *f* **(Lichtbogenofen)** line reactor (am.); supplementary reactor

Drosselventil *n* butterfly valve; choker valve; throttle valve

Druck *m* compression; pressure; thrust

Druckabfall *m* pressure drop

Druckausgleichbehälter *m* surge tank

Druckbeanspruchung *f* compression load; compression stress; compressive stress

Druckbehälter *m* pressure vessel

Druckbogen *m* sheet (printing)

Druckbruch *m* compression fracture

drücken push; spin

Drücken *n* spinning

Drücken *n* **(Blechumformen)** metal spinning

Drücken *n* **von Außenborden** spinning of external flanges

Drücken *n* **von Hohlkörpern** spinning of hollow items

Drücken *n* **von Innenborden** spinning of inside beads

Drücker *m* pusher

Druckerausgabe *f* **(EDV)** print-out

Druckerei *f* printing office

Druckereimaschine *f* printing machine

Druckerweichung *f* **(ff. Steine)** softening under load (refractory bricks)

Druckfeder *f* pressure spring

Druckfestigkeit *f* compression strength; compressive strength; crushing strength

Druckfestigkeit *f* **(Werkzeugstähle)** compression strength (tool steels)

Druckfeuerbeständigkeit *f* refractoriness under load

Druckflüssigkeit *f* hydraulic fluid

Druckförderer *m* dispenser

Druckgasentschwefelung *f* desulphurisation of pressure gas

Druckgebläse *n* forced draft fan

Druckgefäßversuch *m* pressure vessel test

Druckgießkokille *f* pressure casting mo[u]ld

Druckguß *m* compression casting; die casting; high pressure die casting; pressure pouring

Druckgußstück *n* pressure die casting

Druckhöhe *f* head

Druckkessel *m* high pressure boiler; high pressure container; high pressure tank

Druckkraft *f* **(Pressen)** compressive force

Drucklager *n* thrust bearing

Druckluft *f* compressed air

Druckluftanlage *f* compressed-air system

Druckluft-Gesenkhammer *m* compressed air drop hammer

Drucklufthammer *m* compressed air hammer

Drucklufthärten *n* air blast quenching

Druckluftheber *m* air lift pump

Druckluftkessel *m* compressed air container; compressed air tank

Druckluftleitung *f* compressed air line

Druckluftmeßgerät *n* pressure ga[u]ge

Druckluftwerkzeug *n* compressed air tool; pneumatic tool

Druckmantel *m* pressure shell

Druckmarkierung *f* pressure marking

Druckmeßdose *f* pressure cell

Druckmesser *m* manometer; pressure ga[u]ge

Druckminderventil *n* pressure reducing valve

Druckmutter *f* screw-down nut

Druckprobe *f* tension test

Druckpumpe *f* forcing pump

Druckregler *m* pressure governor

Druckschmierung *f* forced lubrication

EXHIBIT A

Metals Handbook®

TENTH EDITION

Volume 1
Properties and Selection: Irons, Steels, and High-Performance Alloys

Prepared under the direction of the
ASM INTERNATIONAL Handbook Committee

Joseph R. Davis, Manager of Handbook Development
Kathleen M. Mills, Manager of Book Production
Steven R. Lampman, Technical Editor
Theodore B. Zorc, Technical Editor
Heather F. Lampman, Editorial Supervisor
George M. Crankovic, Editorial Coordinator
Alice W. Ronke, Assistant Editor
Scott D. Henry, Assistant Editor
Janice L. Daquila, Assistant Editor
Janet Jakel, Word Processing Specialist
Karen Lynn O'Keefe, Word Processing Specialist

Robert L. Stedfeld, Director of Reference Publications

Editorial Assistance
Lois A. Abel
Robert T. Kiepura
Penelope Thomas
Nikki D. Wheaton

ASM INTERNATIONAL

MATERIALS PARK, OH 44073

Exhibit A

First printing, March 1990

Metals Handbook is a collective effort involving thousands of technical specialists. It brings together in one book a wealth of information from world-wide sources to help scientists, engineers, and technicians solve current and long-range problems.

Great care is taken in the compilation and production of this Volume, but it should be made clear that no warranties, express or implied, are given in connection with the accuracy or completeness of this publication, and no responsibility can be taken for any claims that may arise.

Nothing contained in the Metals Handbook shall be construed as a grant of any right of manufacture, sale, use, or reproduction, in connection with any method, process, apparatus, product, composition, or system, whether or not covered by letters patent, copyright, or trademark, and nothing contained in the Metals Handbook shall be construed as a defense against any alleged infringement of letters patent, copyright, or trademark, or as a defense against liability for such infringement.

Comments, criticisms, and suggestions are invited, and should be forwarded to ASM INTERNATIONAL.

Library of Congress Cataloging-in-Publication Data

Metals handbook/prepared under the direction of the
ASM INTERNATIONAL Handbook Committee—10th ed.
p. cm.
Includes bibliographical references and index.
Contents: v. 1. Properties and selection—
irons, steels, and high-performance alloys.
ISBN 0-87170-377-7 (v. 1)
1. Metals—Handbooks, manuals, etc.
I. ASM International Handbook Committee.
TA459.M43 1990 90-115
620.1'6—dc20 CIP

SAN 204-7586

Printed in the United States of America

JUL 16 2001 23:01 FR PROSKAUER ROSE LLP 11212 969 2926 TO *5893*20496248*7 P.13/18

EXHIBIT A

...e 6 Tensile requirements for hot-rolled and cold-rolled plain carbon steel sheet and ...p

...e grade	Yield strength, minimum MPa	Yield strength, minimum ksi	Tensile strength, minimum MPa	Tensile strength, minimum ksi	Elongation in 50 mm (2 in.), minimum, %
...ural quality hot-rolled sheet and strip in cut lengths or coils (ASTM A 570)(a)					
	205	30	340	49	25.0(b)
	230	33	360	52	23.0(b)
	250	36	365	53	22.0(b)
	275	40	380	55	21.0(b)
	310	45	415	60	19.0(b)
	345	50	450	65	17.0(b)
	380	55	480	70	15.0(b)
...ural quality cold-rolled sheet in cut lengths or coils (ASTM A 611)(a)					
	170	25	290	42	26
	205	30	310	45	24
	230	33	330	48	22
...es 1 and 2	275	40	360	52	20
	550(c)	80(c)	565	82	...
...ed sheet for pressure vessels (ASTM A 414)					
	170(d)	25(d)	310	45	26(e)
	205(d)	30(d)	345	50	24(e)
	230(d)	33(d)	380	55	22(e)
	240(d)	35(d)	415	60	20(e)
	260(d)	38(d)	450	65	18(e)
	290(d)	42(d)	485	70	16(e)
	310(d)	45(d)	515	75	16(e)

...oll products, testing by the producer is limited to the end of the coil. Results of such tests must comply with the specified values. ...er, design considerations must recognize that variation in strength levels may occur throughout the untested portions of the coil. ...rally these levels will not be less than 90% of the minimum values specified. (b) At thickness, t, of 2.5–5.9 mm (0.097–0.230 in.). ...this full-hard product, the yield point approaches the tensile strength and because there is no halt in the gage or drop in the beam, ...ld point shall be taken as the stress at 0.5% elongation, under load. (d) Yield strength determined by the 0.2% offset or 0.5% ...ion under load methods. (e) At thickness, t, of 3.7–5.9 mm (0.145–0.230 in.). Source: Ref 1

...resistant to aging, are preferable to ...ed and capped steels. For ingot cast... ...owever, rimmed and capped steels are ...ally superior in inherent surface qual... ...re lower in cost, and are preferred over ...d steel as long as the occurrence of ...cher strains is not a problem.

Strain aging is related to the presence of nitrogen in solid solution in the steel and is affected by time and temperature, with longer times and higher temperatures producing greater aging. The strain-aging rate is also dependent on the amount of deformation that has occurred and is increased when the deformati n occurs at higher temperatures or lower strain rates. Another important variable that affects strain aging is the amount of nitrogen in solution. Killed carbon steels have very little susceptibility to strain aging because their nitrogen content is essentially chemically combined with aluminum. Rimmed and capped steels, however, tend to strain age because they contain greater amounts of nitrogen in solid solution (typically 6 to 30 ppm).

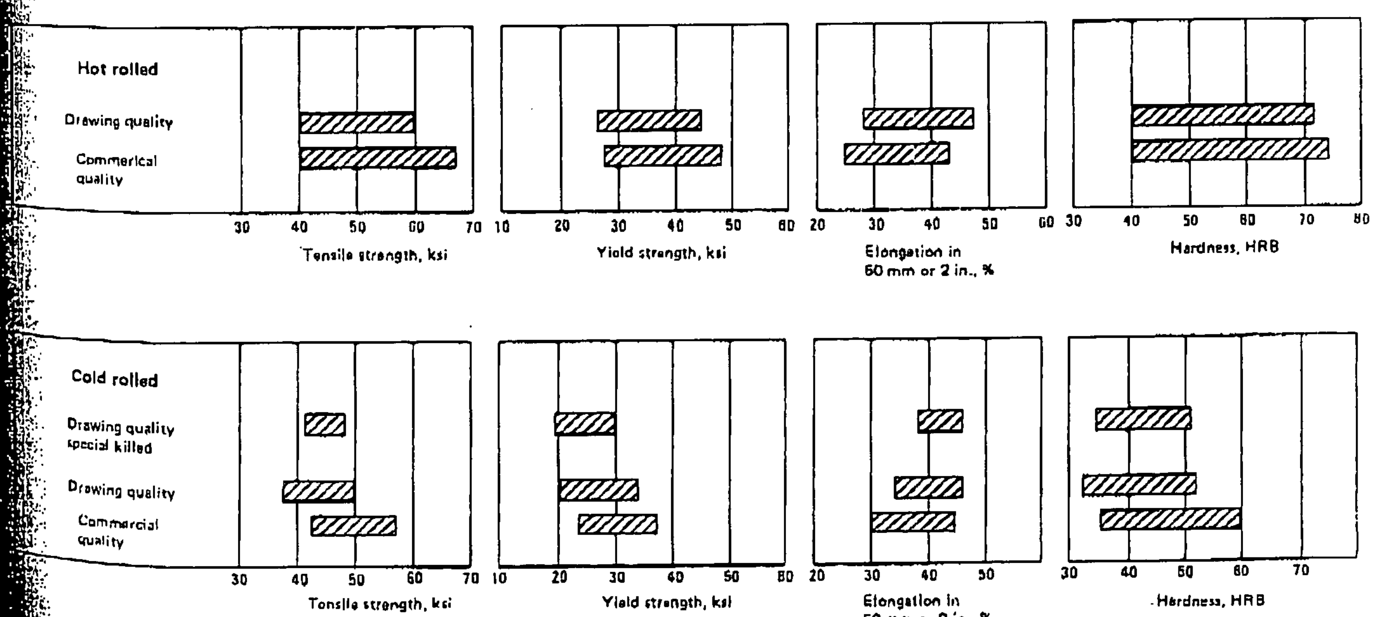
Control of Flatness

Plain carbon steel sheet is ordinarily sold to two standards of flatness:

- Commercial flatness, which is used where flatness is important but not critical
- The stretcher-level standard of flatness, which is required when little or no forming is to be done and the product is required to be flat and free from waves or oil can, or when flatness is necessary to ensure smooth automatic feeding of forming equipment

The permissible variations for the flatness of hot- and cold-rolled sheet have been established by the Technical Committee of the American Iron and Steel Institute and are given in the AISI Steel Products Manual. Commercial flatness can usually be produced by roller leveling or by temper rolling and roller leveling, but where very flat sheet is required, producers may have to resort to stretcher leveling, tension leveling, or other leveling processes.

X In temper rolling, the steel is cold reduced, usually by ½ to 2%, which is also X



...ypical mechanical properties of low-carbon steel sheet shown by the range of properties in steel furnished by three mills. Hot-rolled sheet thickness from 1.519 to 3.416 mm (0.0598 to 0.1345 in., or 16 to 10 gage); cold-rolled sheet thickness from 0.759 to 1.519 mm (0.0299 to 0.0598 in., or 22 to 16 gage). All cold-rolled grades ...temper pass. All grades were rolled from rimmed steel except the one labeled special killed. See Table 5 for the mechanical properties of structural (physical) ...eet.

EXHIBIT A

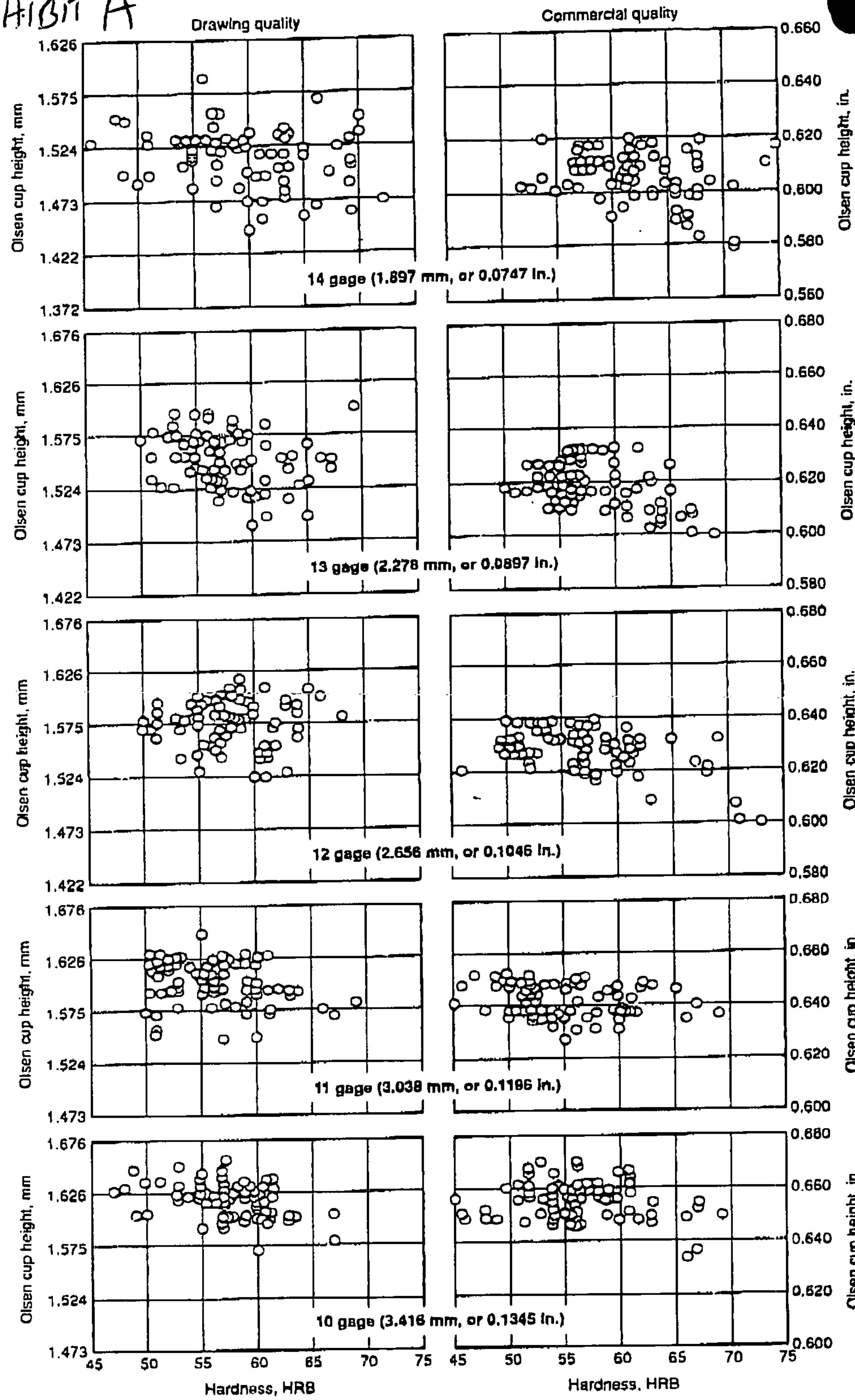


Fig. 2 Scatter in Olsen ductilities of hot-rolled low-carbon steel sheet

effective for removing yield point elongation and preventing stretcher strains.

In roller leveling, a staggered series of small-diameter rolls alternately flexes the steel back and forth. The rolls are adjusted so that the greatest deformation occurs at the entrance end of the rolls and less flexing occurs at the exit end. Stretcher strains can also be eliminated by roller leveling, as as the deformation is great enough t move yield point elongation. Dead-so nealed sheet cannot be made suitabl production of exp sed parts by roller ing because the rolls kink the sheet se ly, producing leveler breaks. The defo areas or kinks will not deform further stretching and will appear as braised after forming.

Stretcher Leveling. Leveling by stret cut lengths of the temper-rolled lengthwise between jaws (stretcher ing) is a more positive means of prod flatness. Elongation (stretching) d stretcher leveling may vary from abou 3%, which exceeds the elastic limit o steel and therefore results in some pe nent elongation. The sheet must be killed or a capped steel having nearly form properties so that it will spring uniformly across its full width and re flat. It may be necessary to use killed having nearly uniform properties so after stretching, strain markings do no velop.

Tension Leveling. Another flattening cess that is used for steel sheet is te leveling, which combines the effec stretcher and roller leveling. The she pulled to a stress near its yield point wh is simultaneously flexed over small the combined tension and bending pro yielding at the flex points.

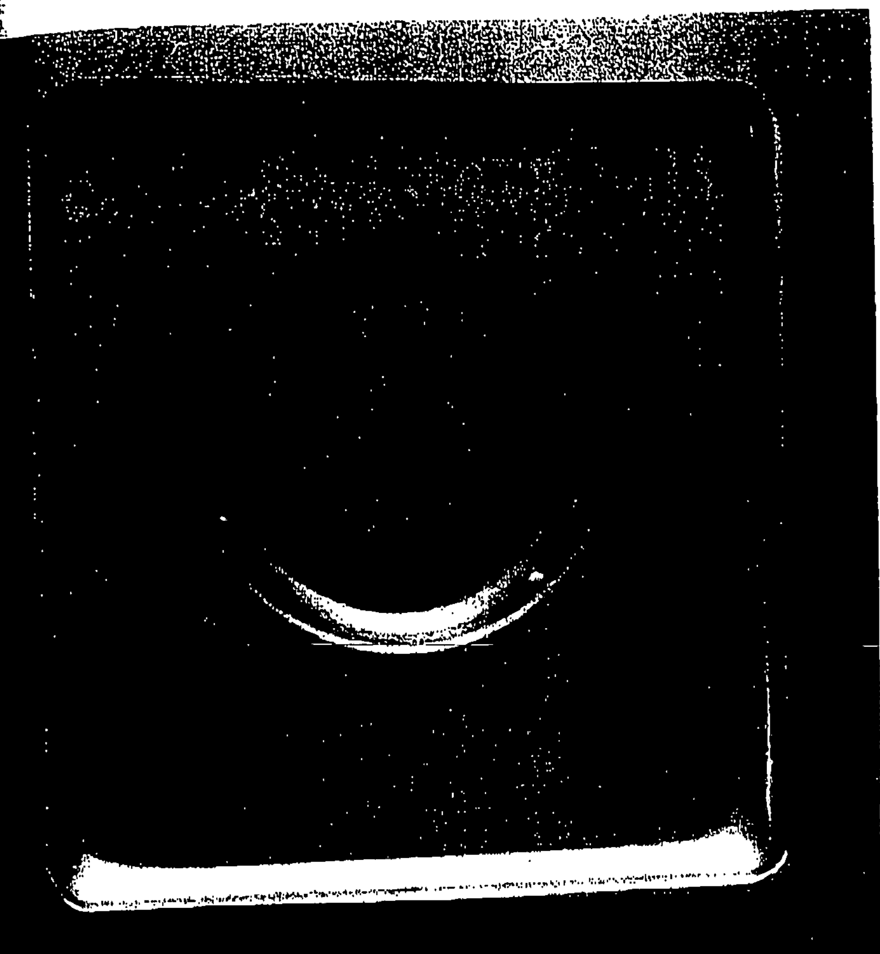
Modified Low-Carbon Steel Sheet and Strip

In addition to the low-carbon steel and strip products already discussed in article, there are numerous additional p ucts available that are designed to sa specific customer requirements. T products are often made with low-ca steels having chemical compositions sl ly modified from those discussed earli

To be considered a plain low-ca grade, a steel should contain no more 0.25% C, 1.65% Mn, 0.60% S, and 0 Cu, but it may also contain small amo of other elements, such as nitrogen, p phorus, and boron, that are effectiv imparting special characteristics when p ent singly or in combination. The mod low-carbon steel grades discussed be are designed to provide sheet and s products having increased strength, fo ability, and/or corrosion resistance.

Carbon-Manganese Steels. Manganese solid-solution strengthening element in rite and is also effective in increasing h enability. Manganese in amounts ran from 1.0 to 1.5% is added to low-ca steel (0.15 to 0.25% C) to provide enha strength (yield strength of about 275 M or 40 ksi) with good ductility in hot-ro and cold-rolled sheet and strip. Com nents fabricated from these higher-ma nese steels can be heat treated by quenc

EXHIBIT A



...mple of stretcher-strain marks (Lüders bands) on a cold-formed steel part

...nd may be isomorphous with it can ... With aging, the low-temperature ...ill gradually be replaced by Fe_3C ...The phase changes during aging of ...gen and iron-carbide quench aged ...e discussed in the literature (Ref

...ge Embrittlement

...ging occurs in low-carbon steels ... certain amounts and then aged, ...oduces an increase in strength and ...but a loss in ductility (Ref 25-27, ...e degree of deformation, or cold ...mportant. Generally, about a 15% ...in thickness provides the maxi... The resulting brittleness varies ...ing temperature and time. Aging ...emperature is very slow, requiring ...onths to obtain maximum embrit... As the aging temperature is in... the time for maximum embrittle...ases. Certain coating treatments, ...t-dip galvanizing, can pr duce a ...e of embrittlement in areas that ...worked the critical am unt; this ...brittle fractures. To prevent this problem, the part can be annealed before galvanizing. Alternatively, the use of sheet steels containing elements that tie up nitrogen, for example, aluminum, titanium, zirconium, vanadium, or boron, will prevent strain-age embrittlement.

Strain aging may also lead to stretcher-strain marks (Lüders bands) on cold-formed low-carbon sheet steel components. These marks are cosmetic defects, rather than cracks, but their presence on formed parts is unacceptable (Fig. 9). During tensile loading, sheet steel that is susceptible to this defect will exhibit nonuniform yielding followed by uniform elongation. The elongation at maximum load and the total elongation are reduced, decreasing cold formability. In a nonaluminum-killed sheet steel, a small amount of deformation, typically 1% reduction, will suppress the yield point for several m nths. This process is referred t as roller levelling or temper rolling (Ref 31). This process is more effective in eliminating the sharp yield point and preventing strain aging than stretching the steel through the Lüders strain, which requires ab ut 4 to 6% reduction. However, if the material is not formed within the safe period, discontinuous yielding will eventually return and impair formability.

Results of ne study illustrate the influence of strain aging on mechanical properties (Ref 32). Three steels made by different processes were evaluated: Steel A, silicon and aluminum deoxidized steel; Steel B, capped open hearth steel; and Steel C, capped Bessemer steel. Steel C had the highest nitrogen content. Steels B and C had low aluminum contents, while steel A had sufficient aluminum to tie up the nitrogen. Strips of each were normalized and loaded in tension to a permanent strain of 10%. The strips were held at 25, 230, 480, and 650 °C (75, 450, 900, and 1200 °F) for various lengths of time (≤25 000 h at 25 and 230 °C, or 75 and 450 °F; ≤10 h at 480 °C, or 900 °F; and 2 h at 650 °C, or 1200 °F). Hardness, tensile properties, and impact properties (half-width Charpy V-notch specimens) were determined at different aging times.

Figure 10 shows the impact test results for steels A, B, and C strained 10% in tension and aged at room temperature up to 25 000 h. The impact curves are shifted with aging at room temperature for all three steels; steel A exhibits the best aged toughness, and steel C the poorest. Figure 11 shows the increase in hardness for steels A, B, and C aged for times up to 25 000 h at 25 °C (75 °F) and 230 °C (450 °F). Room-temperature aging produced a gradual increase in hardness with time. The maximum hardness was about the same and was reached quickest by steel C and slowest by steel A. The hardness increase with aging at 230 °C (450 °F) was constant for steel A and slowly decreased with aging for steels B and C.

In low-carbon steels, strain aging is caused chiefly by the presence of interstitial solutes (carbon and nitrogen), although hydrogen is known to produce a lesser effect at low temperatures. These interstitial solutes have high diffusion coefficients in iron and high interaction energies with dislocations. The change in mechanical properties of low-carbon rimming steels with different carbon and nitrogen contents that were prestrained 4% and aged various times at 60 °C (140 °F) has been demonstrated (Fig. 12) (Ref 34). This work clearly demonstrates the detrimental influence of higher carbon and nitrogen contents on strain aging. The solubilities of carbon and nitrogen in iron are quite different. Nitrogen solubility is high in the temperature range where rapid precipitation occurs; the solubility of carbon, in equilibrium with cementite, is very low. Therefore, strain aging that is due to carbon at temperatures below 100 °C (210 °F) is insignificant. However, above 100 °C (210 °F), ε carbide can redissolve and produce substantial strain aging (Ref 35). Strain aging attributable to nitrogen is caused by

DR.-ING. RICHARD ERNST

DICTIONARY

OF ENGINEERING AND TECHNOLOGY

with extensive treatment of the most modern techniques and processes

EXHIBIT B

VOLUME II

ENGLISH-GERMAN

Fifth edition completely revised and enlarged

OSCAR BRANDSTETTER VERLAG · WIESBADEN

DR.-ING. RICHARD ERNST

WÖRTERBUCH

DER INDUSTRIELLEN TECHNIK

unter weitgehender Berücksichtigung der neuzeitlichen Techniken und Ve[illegible]

BAND II

ENGLISCH-DEUTSCH

Fünfte, vollkommen überarbeitete und erheblich erweiterte Auflage

OSCAR BRANDSTETTER VERLAG · WIESBADEN

Ernst, Richard:
Wörterbuch der industriellen Technik.: unter weitgehender Berücks. d. neuzeitl. Techniken u. Verfahren. Richard Ernst. - Wiesbaden: Brandstetter
Teilw. mit Parallelsacht. entsprechend d. Sprache d. Bd.: Dictionary of industrial technics. - Dictionnaire de la technique industrielle. - Diccionario de la técnica industrial. - Dicionário da técnica industrial
ab Bd. 9 u. d. T.: Ernst, Richard: Comprehensive dictionary of engineering and technology

NE: HST

Bd. 2. Englisch-Deutsch. - 5., vollkommen überarb. u. erhebl. erw. Aufl. - 1985.
ISBN 3-87097-116-9

EXHIBIT B

5. Auflage 1985

Textverarbeitung: Siemens-Programmsystem-TEAM
Lichtsatz: dateam Vertriebsgesellschaft mbH + Co. KG, Frankfurt am Main
Der Umbruch wurde mit Programmen der RZB Rechenzentrum Buchhandel GmbH gerechnet
Druck: Oscar Brandstetter Druckerei GmbH & Co. KG, Wiesbaden

Library of Congress Catalog Card Number AF 28085

ISBN 3-87097-116-9

Printed in Germany

EXHIBIT B

Speichersteuereinheit f| ~ core (comp) / Speicherkern m | ~ cycle (comp) / Speichertakt m | ~ dam / Speicherdamm m | ~ deallocation (comp) / Speicherplatzfreigabe f | ~ density (comp) / Speicherungsdichte f, Schreib-, Zeichendichte f | ~ device (comp) / Speicher m | ~ drum for solar panel (space) / Speichertrommel für Solarzellenträger f | ~ dump (comp) / Speicherabzug m, -ausdruck m | ~ economy (comp) / wirtschaftliche Speichernutzung | ~ efficiency (comp) / Speicherausnutzung f | ~ element (comp) / Speicherelement n | ~ equipment / Lagerausrüstung f, -ausstattung f | ~ factor (electron) / Q-Faktor, Gütefaktor m | ~ fill (comp) / Speicherinhalt m | ~ filming / Belegverfilmung f | ~ flask (chem) / Standgefäß n, -flasche f | ~ for constant values / Festwertspeicher, Konstantenspeicher m | ~ for more than one year (hydr) / Überjahresspeicher m | ~ heater (electr) / Wärmespeicherheizgerät n | ~ hopper / Füllrumpf, Vorratsbunker m | ~ horizon (gas) / Speicherschicht f, Speicherhorizont m | ~ in underground cavities (gas, oil) / Untertagelagerung f, -speicherung f | ~ keg / Lagerfaß n | ~ keyboard (electron) / speichernde Tastatur | ~ lake / Stausee m | ~less / speicherlos, ohne Speicher(ung) | ~ level (gen) / Speicherebene f | ~ life / Lagerfähigkeit f | ~ location (comp) / Speicherzelle f (DIN), -platz m (IBM), Speicherstelle f | ~ losses / Lagerverluste m pl | ~ map (comp) / Speicherorganisation f | ~ mechanism / Speicherungseinrichtung f | ~ medium (comp) / Datenträger m | ~ medium (laser) / Speichermedium n | ~ of energy / Energieaufspeicherung f | ~ oscilloscope / Speicheroszilloskop n | ~ overflow (comp) / Speicherüberlauf m | ~ overlapping / Speicherüberlappung f | ~ period (comp) / Speicherungszeitraum m | ~ polder (hydr) / Speicherpolder m | ~ power station / Talsperrenkraftwerk n, Sperrenkraftwerk n | ~ print-out (comp) / Speicher-Drucken n | ~ protection (comp) / Speicherschutz m, -schreibsperre f | ~ quality / Lagerfähigkeit f | ~ register / Speicherregister n | ~ reservoir see storage basin (hydr) | ~ room / Lager n, Lagerraum m | ~ scan (comp) / Speicherprüfung f | ~ section / Speicherbereich m | ~ siding (rail) / Abstellgleis n | ~ sidings (rail) / Wartegruppe f, Abstellbahnhof m | ~ sluice / Speicherschleuse f | ~ snapshot (comp) / Speicherprotokoll n | ~ snapshot printout (comp) / Speicher-Protokollausdruck m | ~ space / Lager n, Lagerraum m | ~ space (reactor) / Aufbewahrungsraum m | ~ stability (oil) / Lagerungsbeständigkeit f | ~ swap (comp) / Ein- n und Auslagern von Programmen | ~ system / Speicherungseinrichtung f | ~ tank / Lagerbehälter, Vorrats-, Sammelbehälter m, -tank m | ~ tank (oil) / Lagertank m | ~ tape / Speicherband n | ~ target (TV) / Speicherplatte f | ~ temperature range (semicond) / Lagerungstemperaturbereich m | ~ time (ind.eng) / Liegezeit (im Betrieb) f, Lagerungszeit f (im Lager) | ~-to-storage operation, SS (comp) / Speicherbefehl m | ~ track (rail) / Abstellgleis n | ~ tube (electron) / Speicherröhre f, Memory-Röhre f | ~ utilization (comp) / Speicherausnutzung f | ~ varactor (electron) / Speicherschaltdiode f, -varaktor m | ~ vat (brew) / Lagerfaß n | ~ vault / Archiv n | ~ vessel (chem) / Standgefäß n, -flasche f | ~ volume (hydr) / Speicherraum m, Speichermenge f | ~ water heater / Warmwasserspeicher m, Entleerungs-, Ablaufspeicher m | ~ word (comp) / Speicherwort n | ~ yard / Lager n, -platz m | ~ yard (lumber) / Stapelplatz m | ~ zone of data (comp) / Speicherzone f für Daten

storax, levant storax (pharm) / Storax m | ~ oil / Storaxöl n | ~ tree / Benzoebaum m

store vt, warehouse vt / lagern, auf Lager nehmen o. legen | ~ v, accumulate / speichern, ansammeln | ~, keep / aufbewahren, aufheben | ~, mature / ablagern | ~ (comp) / einspeichern, einlesen | ~ in bulk / lose lagern | ~ n (comp) / Lagervorrat, -bestand m, Inventar n, Material vom (o. im) Lager, Warenlager n | ~, warehouse / Speicher m, Lagerhaus n, -raum m, Lager n, Magazin n | ~, shop (US) / Laden m, Geschäftslokal n | on ~ / auf Lager | ~ access (GB) (comp) / Speicherzugriff m

store-and-forward mode (comp) / Speichervermittlung f | ~ service (telecom) / Mitteilungsdienst m | ~ switching center / Speichervermittlungsstelle f

store back (comp) / wiedereinspeichern | ~ construction / Ladenbau m | ~ controller (comp) / Lagerkontrolleinheit f

stored data pl (space) / gespeicherte Daten | ~ energy (nucl) / gespeicherte Energie | ~ energy constant (electr) / Trägheitskonstante f | ~ energy operation / Kraftspeicherbetätigung f | ~-energy (welding) machine / Kondensator(schweiß)maschine f | ~ heat / Speicherwärme f | ~ program computer / speicherprogrammierter Rechner | ~ program controlled, SPC / speichergesteuert | ~ program system, SPS / speicherprogrammiertes System, SPS

store house / Lagerhaus n | ~ keeper o. man / Lageraufseher, -verwalter m, (auch:) -arbeiter m | ~s label / Werkstoffkarte f, Materialkarte f (Schweiz) | ~ losses / Lagerverluste m pl | ~ lumber / Stapelholz n | ~ room for tools / Lagerraum m, Lager n, Werkzeuglager n | ~ shed / Lagerschuppen m, Materialschuppen m | ~ tank / Vorratsbehälter m | ~ timber / Stapelholz n | ~ up, stockpile / aufstapeln, -speichern | ~ up heat / die Wärme binden o. aufspeichern

storey (GB) (civ eng) / Stockwerk n, Stock m, Geschoß n

storeyard / Materiallagerplatz m

storey at garden level / Gartengeschoß n

storing / Lagerung f (von Gütern) | ~ (comp) / Speichern n | ~ basin o. reservoir o. tank / Speicherbecken, Speisebecken n | ~ in a silo / Einlagerung f im Silo, Silieren n | ~ in humid atmosphere / Feuchtlagerung f | ~ of water / Stau m, Speicherung f | ~ properties / Lagerfähigkeit f | ~ routine (comp) / Abspeicherroutine f | ~ temperature (warehouse) / Lager(ungs)temperatur f | ~ under mask (comp) / Speichern n unter Maske

storm / Windstärke 11, orkanartiger Sturm | ~ choke (natural gas) / Regeldüse f | ~ cloud / Sturmwolke f | ~ door (US) (civ eng) / Doppeltür f, Vortür f

Störmer unit / Störmer-Einheit f

storm flow (road) / Regenwasserabfluß m | ~-guyed pole (telecom) / Linienfestpunkt m | ~ ladder / Lotsentreppe f, Sturmleiter f, Seefallreep n | ~ pavement (dam) / Böschungspflaster n | ~ sewage / Regenwasser n, Oberflächenwasser n (Abwasser) | ~ sewer, storm drain / Regenwasserkanal m | ~ sewer system / Oberflächenwasser-Kanalisation f | ~ signal / Sturmball m | ~ warning / Sturmwarnung f | ~ water / Regenwasser n (Abwasser), Oberflächenwasser n | ~ water flow (hydr) / Hochwasserdurchfluß, Notauslaß m | ~ water tank o. reservoir / Regenklär-, -wasserbecken n, Ansammlungsbehälter, -tank m | ~ window, storm sash / Vorfenster n

story (US) (civ eng) / Stockwerk n, Stock m, Geschoß n

stout n (brew) / Stoutbier n, Stout m | ~ adj / gedrungen, stark, fest | ~ close-boarded shuttering (civ eng, concrete) / enge Schalung | ~ cloth / dichtes (o. starkes o. schweres) Tuch

stovaine (chem) / Stovain n, Amylocain n

stove vt / im Wärmeofen trocknen | ~ (plast) / tempern | ~ (enamel) / einbrennen | ~ (tex) / reduzierend bleichen, schwefeln | ~, dry (tex) / kammertrocknen | ~ n (civ.eng) / Ofen m, Zimmerofen m | ~ (brew) / Darre f | ~ (GB), stove furnace (enamel) / Einbrennofen m | ~ (GB), greenhouse / Gewächshaus n | ~, kitchen range / Küchenherd m, Kochherd m | ~ bleaching (tex) / Schwefeln n, Schwefelkammerbleiche f | ~ bolt (US) / Schlitzschraube f mit Metallgewinde (Rundkopf o. versenkt), Senkschraube mit Längsschlitz, Rundkopfschraube mit Längsschlitz

stove(d)-enamel (finish), stove enamelling / Einbrennlackierung f

stove drying (tex) / Kammertrocknen n | ~-enamel v, stove-finish / einbrennlackieren | ~ enamel n / Einbrennlack m, eingebrannter Lack | ~ fillings (met) / Winderhitzerbesatz m, Cowperbesatz m | ~ fitter o. maker o. setter / Ofensetzer m | ~ heating (civ eng) / Einzelofenheizung f, Ofenheizung f | ~ pipe / Ofenrohr n | ~ pipe elbow forming machine / Knierohrbiegemaschine f | ~ room / Heizungsraum, -keller m | ~ room (brew) / Darre f | ~ setting / Kaminbau m | ~ tile / Ofenkachel f, Kachel f

stoving (tex) / Schwefeln n, Schwefelkammerbleiche f, Schwefelbleiche f | ~ (paint) / Einbrennen n | ~ (plast) / Nachhärten n | ~ chamber (tex) / Schwefelkammer f | ~ equipment (tex) / Schwefelbleich-Geräte n pl

stow, pack (mining) / versetzen, zukippen | ~, put aside (mining) / wegräumen

stowage (ship) / Stauung f, Verstauen n | ~ (mining) / Bergeversatz, Versatz m | ~ factor (ship) / Staufaktor, -koeffizient m, Räumte f (in m³/t) | ~ loop (parachute) / Packschlaufe f | ~ of useful load (space) / Nutzlastbefestigung f, -unterbringung f

stow away / unterbringen, verstauen

stowed (space, appendage) / eingezogen

stower (mining) / Versatzarbeiter m | ~, stowing machine (mining) / Versatzmaschine f | ~ pipe line (mining) / Blasrohrleitung f

stowing (hydr) / Anstauung f | ~ (mining) / Bergeversatz, Versatz m | ~ machine (mining) / Versatzmaschine f | ~ machine, centrifugal o. mechanical type (mining) / Schleuderversatzmaschine f | ~ machine, pneumatic type / Blasversatzmaschine f

S.T.P., s.t.p. (thermodynamics) = standard temperature and pressure

str. = stroke | ~ = steamer

straddle vt, span (e.g. a river) / (im Reitsitz) überspannen | ~ (US) (installation) / umgehen, ausweichen | ~ the load / die Last überfahren | ~ vt (mil) / spreizen | ~ carrier o. truck / Torhubwagen, Torstapler, -lader m, Portalhubwagen m, Portalfahrzeug n | ~ crane / Torkran m | ~ cutter (m tools) / Doppelscheibenfräser m | ~ hole over center line / Bohrung f auf der Mittellinie | ~ loader o. lift / Portalhubwagen m, -stapler m, -stapelwagen m, Torstapler, -lader m, Van-Carrier m | ~-mill v / zwei Seitenflächen gleichzeitig fräsen | ~ milling / Fräsen n zweier Seitenflächen | ~ packer (oil) / Straddlepacker m | ~ the continuous line (mot, coll) / auf dem Strich reiten | ~ tractor (agr) / Stelzradschlepper m | ~ truck see straddle carrier | ~ wrench, face wrench for slotted lock rings / Gabelschlüssel m für Kreuzloch- o. Nutmutte[rn]

straddling dowel / Spreizdübel m | ~ position / Reitsitzstellung f | ~ vineyard tractor / Weinkulturgerät n auf Stelzen

strafing (mil) / im Tiefflug Angreifen

straggling (nucl) / statistische Streuung, Straggli[ng] | ~ (dna) / Streuung f, Streubreite f, Straggling | ~ (space) / Bahnschwankungen f pl

straight n (surv) / Zwischengerade f (zwischen Krümmungen) | ~ adj / gerade, geradlinig | ~ (stairs) / gerade, geradläufig | ~ (substance) / rei[n], unvermischt | ~ (liquids) / unverdünnt | ~, upri[ght] / scheitelrecht, aufrecht | ~ (gas) / unvermisch[t] (oil) / nichtwassermischbar | in a ~ line / schnurgerade | in a ~ line / schnurgerade | ~ accent (graph) / Längezeichen n | ~ amplifie[r] / Geradeausverstärker m | ~ angle / gestreckte[r] Winkel | ~ arch (civ eng) / Flachgewölb[e]

straightaway (method) / direkt, rein | ~ st[...] Geradstich m

straight axle (rail) / gerade Achse, Normalachse | ~ back hand saw with open handle / Fuchsschwanz m | ~ bank o. multiple (telecom) / gerades (o. unverschränktes) Vielfachfeld | ~ knitting machine / Cottonmaschine f, Flachkuliermaschine f | ~ bar linking machi[ne] (tex) / Flachkettelmaschine f, -kettmaschine | ~ bar machine (tex) / Flachstrickmaschine f | ~-barrel vault / Halbkreisgewölbe n, Tonnengewölbe n | ~ bead (weld) / Längsnah[t] | ~ belt rivet / Riemenniet m n | ~ bevel gear / Geradzahnkegelrad n | ~ bevel gear pair / Kegelstirnradgetriebe n | ~ binary / rein bin[är] | ~ blast furnace gas / unvermischtes Hochof[engas] | ~ bobbin (spinn) / Tellerspule f, Randspule | ~ bow (civ eng) / gerader Bogen, Sturzbogen | ~ brazed connection of lead pipes / gerade Verbindung von Bleirohren | ~ brick / Normalstein m | ~ brick (met) / Rechteckstei[n], Normalstein m | ~ buttonhole (sew m) / Wäscheknopfloch n | ~ cable outlet / gerad[er] Kabelabgang | ~ cap jewel (clock) / Deckstein flach | ~ carbon steel / reiner Kohlenstoffst[ahl] | ~ cartridge (lantern slide) / Geradma[...] | ~ cast wire (roll) / vom Ring gerade [...] Draht | ~ chain (chem) / offene gerade Kette | ~-chain... (chem) / geradkettig | ~ channel (h[ydr]) / Schußgerinne n | ~ channel (foundry) / Gieß[rinne] f | ~ chassis (mot veh) / Chassis n mit gerade[n] Trägern | ~ coal gas / Starkgas n (aus Kohle) | ~ coke oven gas / unvermischtes Koksofen[gas] | ~ continuous (roll) / rein kontinuierlich | ~ crossfall (road) / Pultquerschnitt m | ~-cu[p] grinding wheel / zylindrischer Schleiftopf | ~ [cut] (control system) (US) (N/C) / Streckensteue[rung] | ~ cut positioning (N/C) / Streckenposition[ierung] f | ~ cylindrical grinding / Durchschleifen | ~ cylindrical pin / Paßstift m | ~ differentia[l] / Stirnrad-Ausgleichgetriebe n | ~ disk (grind) / flache o. glatte Scheibe | ~ distance (radar) / Geradeausentfernung f | ~ distillation / ge[rade] Destillation | ~ dovetail back saw / Feinsäg[e] (DIN) | ~ drawing-in draft (spinn) / gerader Einzug | ~ dyestuff / einheitlicher Farbstof[f]

straightedge (draw) / Lineal n, Linienzieher (techn) | Haarlineal n, Abrichtlineal n, Tuschierlineal n | ~ (striker) (civ.eng) / Abz[iehlatte] f, Richtscheit n